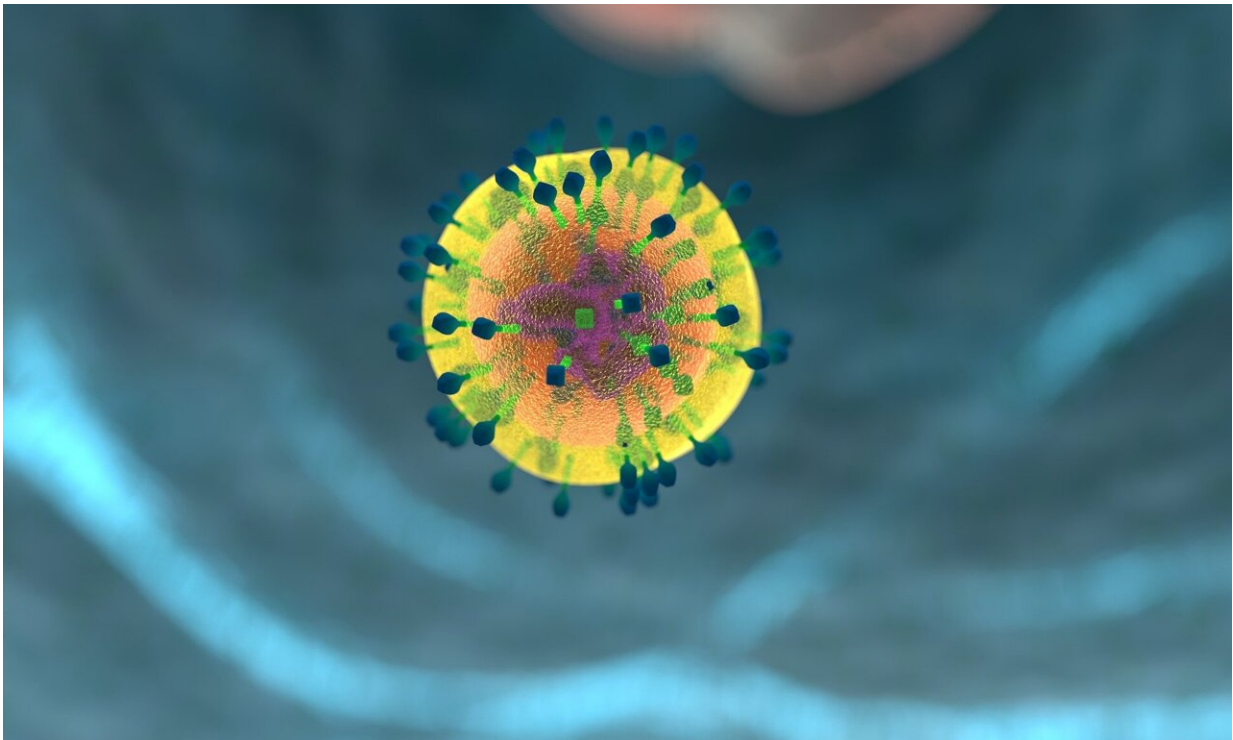


Select cells 'home in on the skin like guided missiles' at birth to enhance immunity

April 14 2023, by Will Sansom



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Certain immune cells possess a homing property that directs them to the skin at birth to protect the baby, researchers from The University of Texas Health Science Center at San Antonio (UT Health San Antonio) discovered.

"These T cells home in on the [skin](#) like a guided missile," said Na Xiong, Ph.D., professor of microbiology, immunology and [molecular genetics](#) in the health science center's Joe R. and Teresa Lozano Long School of Medicine. "They have a different homing property than other T cells. We identified the mechanism through which this homing activity occurs."

Localization of these T cells to the skin is important not only at birth but for lifelong immunity, said Xiong, senior author of an article that appeared on the cover of the February 2023 issue of *Nature Immunology*.

In the womb, a mother's defenses protect a fetus against bacteria. At birth, the skin and other tissues such as the gut are exposed to [commensal bacteria](#). These are harmless bacteria that are beneficial by keeping any disease-causing bacteria in check.

The skin-homing cells are called invariant killer T (iNKT) cells. These [immune cells](#) emanate from and are programmed in an organ called the thymus. In humans, this organ is located between the lungs.

The iNKT cells cooperate with the commensal bacteria to preserve skin health and act as a barrier for the body against bacterial pathogens, Xiong said.

"We found that if the iNKT cells do not properly go to the skin, or if there is no such population in the skin, there will be dysregulation of commensal bacteria in the skin and the bacterial composition will be changed," Xiong said. "This can result in not enough friendly bacteria being present, enabling potentially pathogenic bacteria to overgrow."

In a second important finding, the researchers observed that the skin-homing iNKT cells help promote hair follicle development. The cells

situate preferentially around follicles and are not the only ones present there, Xiong said. "Within the [hair follicle](#), there are also a lot of commensal bacteria. It is one place they like to stay," he said. The follicles themselves are critical sites of immune defense, he added.

More information: Wei-Bei Wang et al, Developmentally programmed early-age skin localization of iNKT cells supports local tissue development and homeostasis, *Nature Immunology* (2023). [DOI: 10.1038/s41590-022-01399-5](#)

Provided by University of Texas Health Science Center at San Antonio

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